

Revealing the wealth of our oceans

A new national collaborative research program aims to position Australia as an international leader in the delivery of economic, social and environmental wealth based on initiatives in understanding our ocean systems and processes.

Seventy per cent of Australia's sovereign territory is under the ocean, and yet 96% of this rich resource remains unmapped and unused. Under the Wealth from Oceans Flagship, CSIRO and over 10 other research partners¹ are poised to lead the way in the next phase of the exploration of Australia.

'Using new science, we aim to discover the wealth that is hidden beneath the surface of our huge ocean territory,' CSIRO Chief Executive Dr Geoff Garrett said at the programme's launch in Sydney on 27 August 2004. 'We know more about distant planets than the oceans on our doorstep. The Flagship has the charter to explore and develop wealth from our oceans to create new science, new industries, jobs and careers.'

CSIRO is focusing its marine science investment on areas of national significance – climate change and variability, ocean system understanding, marine industry productivity and international competitiveness, and smart ocean management.

Dr Garrett said the Flagship would form the core of an industry cluster that would export marine products, know-how and technology to the world.

'We have an even greater duty,' he said, 'one of environmental stewardship – to ensure future generations can enjoy and benefit from our oceans as we do right now. Today, marine science is on the brink of major advances which will transform our existing ocean-based industries.'

Craig Roy, the Flagship's Director, outlined that Wealth from Oceans will show the responsible way to unlock the value in the ocean's plant, animal and mineral resources, and that it would also deliver development and growth at a regional level through better policy and community management options founded on excellent science and a sound understanding of the oceans themselves.

'Our maritime industries produce significant resources, through trade,



Divers ascending through a giant kelp forest at Bicheno on the east coast of Tasmania. Giant kelp is one of the fastest growing plants on earth and can, under the best conditions, grow in excess of 30 cm per day. The fronds are held on the surface by gas-filled floats. Graham Blight

defence, oil and gas, fisheries, tourism and other industry groups,' Mr Roy said. 'Wealth from Oceans is about giving something back to them, making them more productive, making Australian industry competitive and sustainable on a global scale – through science.'



Australia's oceanographic research vessel, ORV *Franklin*, will carry Flagship scientists and other support staff to field sites. Bill van Aken

Scientists from the Wealth from Oceans Flagship program have already begun ensuring that the value of Australia's oceans, which span from the chilly Antarctic waters to our northern tropical seas, is identified and unlocked responsibly.

New technologies such as high-performance computing, robotics and remote sensing are providing valuable information about ocean ecology with wide-ranging implications for everyday life. Seabed research ensures oil and gas companies use fuel extraction methods that minimise environmental impacts. Robotics are being employed to explore the ocean floor and determine the general health of Australia's seas.

CSIRO Oceanographer Dr Steve Rintoul said the Flagship would help with critical, long-range seasonal weather predictions for farmers and new techniques in oceanography for the defence of Australia.

'A half a degree shift in ocean temperature off northern Australia equates to about a three billion dollar change to the bottom line for Australia's agricultural sector,' Dr Rintoul said.

'In 1997 we had a very strong El Niño but relatively mild drought in Australia. In 2002 we had a relatively weak El Niño but the worst drought of the last century. We don't really know why. The Flagship is targeting that question and trying to identify those other ocean drivers of climate.'

'Understanding and being able to predict ocean variability gives valuable information to those predicting climate variability on the land.'

More information:

Wealth from Oceans brochure,
<http://www.csiro.au/proprietaryDocuments/WealthFromOceans.pdf>

1. Major partners include the National Oceans Office, Australian Greenhouse Office, Bureau of Meteorology, Royal Australian Navy, WA State Government, and NSW State Government. Smaller partnerships involve the Australian Institute of Marine Science, Antarctic Climate and Ecosystems Cooperative Research Centre, University of Tasmania, and the Australian Oceanographic Data Centre.